



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|----------------------------------|-------------|----------------------|---------------------|------------------|
| 10/668,550 | 09/23/2003 | Prashant R. Chandra | P16883 | 2918 |
| 28062 | 7590 | 01/31/2006 | EXAMINER | |
| BUCKLEY, MASCHOFF, TALWALKAR LLC | | | MARTINEZ, DAVID E | |
| 5 ELM STREET | | | ART UNIT | |
| NEW CANAAN, CT 06840 | | | PAPER NUMBER | |
| | | | 2181 | |

DATE MAILED: 01/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-------------------------------|--------------------------------|--|
| Office Action Summary | Application No. 10/668,550 | Applicant(s) CHANDRA ET AL. | |
| | Examiner David E. Martinez | Art Unit 2182 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 14-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 14-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-9 and 20-21 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent Application Publication No. US 20020176430 A1 to Sangha et al. (hereinafter Sangha).

1. With regards to claims 1 and 20, Sangha teaches an apparatus, comprising:
 - a communication path to exchange information packets [fig 2 transfer line elements 291, 292];
 - a processor to process information packets [fig 2 element 100],
 - a buffer pool cache [fig 2 elements 238] local to the processor [fig 2 element 100] to store free buffer handles for information packets if the buffer pool cache local to the processor is not full [paragraph 93]; and
 - a non-local memory [fig 2 element 240] to store the free buffer handles for information packets if the buffer pool cache local to the processor is full [paragraph 93].
2. With further regards to claim 20, Sangha teaches an asynchronous transfer mode interface [paragraph 19 and 20, 48].
3. With regards to claims 2 and 21, Sangha teaches the apparatus of claim 1, wherein the processor and buffer pool cache are formed on the same integrated circuit die [fig 2 element 100 includes FIFO element 230 which holds the buffer pool cache elements].

Art Unit: 2182

4. With regards to claim 3, Sangha teaches teaches the apparatus of claim 1, wherein the communication path comprises:

an input path for receiving information packets [fig 2 transfer line element 291]; and

an output path for transmitting information packets [fig 2 transfer line element 292].

5. With regards to claim 4, Sangha teaches the apparatus of claim 1, wherein the communication path comprises:

a memory path for fetching and freeing buffers [fig 2 bus element 240 paragraph 46].

6. With regards to claim 5, Sangha teaches the apparatus of claim 1, wherein the processor comprises:

a receive processor connected to the communication path to process information packets [fig 2 element 290]; and

a transmit processor connected to the receive processor and the communication path to process information packets [fig 2 element 290].

7. With regards to claim 6, Sangha teaches the apparatus of claim 1, wherein the processor comprises:

a secondary processor connected to the communication path and the buffer pool cache [paragraph 46, not show but present in fig 2].

8. With regards to claim 7, Sangha teaches the apparatus of claim 1, wherein the communication path connects to at least one of a dynamic random access memory and a static random access memory [paragraph 47].

9. With regards to claim 8, Sangha teaches the apparatus of claim 1, wherein the buffer pool cache is a set of next neighbor registers configured to form a next neighbor ring [paragraphs 16, 17 and 75].

10. With regards to claim 9, Sangha teaches the apparatus of claim 1, further comprising:

Art Unit: 2182

a communication interface device [fig 2 element 290] coupled to the communication path [fig 2 transfer line elements 291, 292].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10-12 and 14-19, rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent Application Publication No. US 20020176430 A1 to Sangha et al. (hereinafter Sangha).

11. With regards to claims 10 and 17, Sangha teaches a method, comprising:

receiving an information packet [paragraph 81];

fetching from a local buffer pool cache a buffer handle to be associated with the information packet if the local buffer pool is non-empty [paragraph 81].

Sangha teaches all of the above limitations but is silent as to fetching the buffer handle from a non-local memory if the local buffer pool cache is empty. However, Sangha does teach storing queue contents (such as handles) in a non-local memory and then later on fetching these queue contents (such as handles) from the non-local memory when needed for the benefit of avoiding transmission inefficiencies and data loss that may occur due to size limitations associated with local memory [paragraph 13].

It would have been obvious to one of ordinary skill in the art at the time of the invention to fetch the buffer handle from a non-local memory if the local buffer pool cache is empty for the benefit of avoiding transmission inefficiencies and data loss that may occur due to size limitations associated with local memory.

Art Unit: 2182

12. With regards to claims 11 and 18, Sangha teaches the method of claim 10, further comprising:

storing the information packet in a buffer associated with the fetched buffer handle [paragraphs 83, 84].

13. With regards to claims 12 and 19, Sangha teaches the method of claim 11, further comprising:

processing the information packet [paragraph 11];

transmitting the information packet [paragraph 11]; and

freeing the buffer handle to the local buffer pool cache [paragraph 95].

14. With regards to claim 14, Sangha teaches the method of claim 12, further comprising:

freeing the buffer handle to a non-local memory when the local buffer pool cache is full [paragraph 93].

15. With regards to claim 15, it is of the same scope as claim 8 above and thus is rejected under the same rationale.

16. With regards to claim 16, Sangha teaches the method of claim 12, wherein the information packet is processed by at least one of a receive processor [fig 2 element 45], a transmit processor [fig 2 element 45], and a secondary processor [paragraph 46, CPU element].

Response to Arguments

Applicant's arguments with respect to claims 1-12 and 14-21 have been considered but are moot in view of the new ground(s) of rejection. Also, current claim 10 is of a different scope from the original claim 10 and/or 13

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent No. 6,055,558 to Lin et al. teaches transferring data from a local buffer to an external buffer when the local buffer becomes full – column 2 lines 47-56.

US Patent Application Publication No. US 20040131055 A1 to Calderon et al. teaches on Fig 3 an external memory holding free buffer handles that are accessed anytime a packet needs to be stored, and on figures 4 and 5, elements 405 and 406 being local memories holding free buffer handles.

US Patent Application Publication No. US 20020174316 A1 to Dale et al. teaches a global free queue containing a list of pointers linked to memory indicating free space in memory where data can be stored.

US Patent No. 5,751,951 to Osborne et al. teaches having pointers to buffers that where to data can be stored.

US Patent No. 6,918,005 to Marchant et al. teaches a cache for free cell pointers and an external memory holding cell pointers that replenish the cache of the cell pointers.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

Art Unit: 2182

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David E. Martinez whose telephone number is (571) 272-4152. The examiner can normally be reached on 8:30-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Huynh can be reached on (571) 272-4147. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DEM



KIM HUYNH
SUPERVISORY PATENT EXAMINER

1/29/06